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ABSTRACT

This paper presents data concerning public playgrounds that shows a majority of American playgrounds pose hidden threats to children. It reveals that 1) 80 percent of the 1,024 playgrounds surveyed lacked adequate protective surfacing; 2) 31 percent of slides and climbing equipment surveyed did not have an adequate fall zone; 4) 48 percent of playgrounds had climbers and 36 percent had slides where height of the play equipment is greater than 6 feet; 5) 13 percent of playgrounds with swings had swing seats that are made of wood, metal, or other rigid material that increases injury severity; 6) 27 percent of playgrounds with swings had some swings that were either too close together or too close to swing supports; 7) 34 percent of playgrounds improperly sized openings in the play equipment posing a head entrapment threat; 8) 38 percent of playgrounds had small gaps, open S-hooks and other protrusions posing clothing entanglement threats; 9) 38 percent of playgrounds had unacceptable dangerous equipment, such as chain or cable walks and animal swings; and 10) 47 percent of all playgrounds had peeling, chipped, or cracking paints on equipment surfaces. Recommended corrective actions are offered. (Contains 10 endnotes.) (GR)

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Playing It Safe

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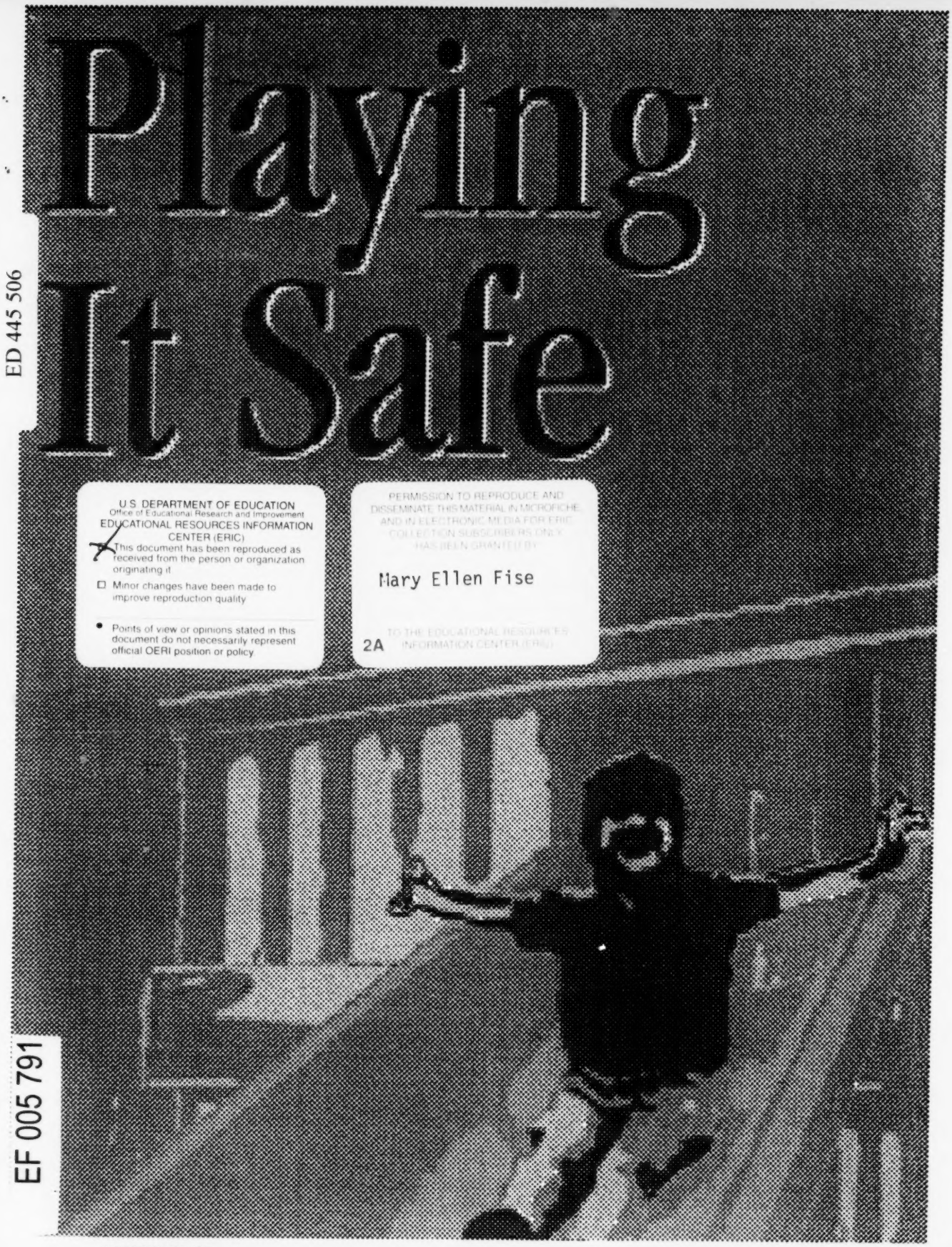

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PLAYING IT SAFE: JUNE 2000

A Fifth Nationwide Safety Survey of Public Playgrounds

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The **Consumer Federation of America (CFA)** is the nation's largest consumer organization, with over 260 national, state and local members representing the interests of over 50 million consumers.

EXECUTIVE SUMMARY

The fifth nationwide investigation of public playgrounds by the Public Interest Research Groups (PIRG) and Consumer Federation of America (CFA) found that a majority of American playgrounds pose hidden threats to our nation's youngsters.

Too many children are getting hurt and killed on our playgrounds. Approximately 170,100 children are injured seriously enough on public playground equipment to require emergency room treatment each year. Tragically, an average of 17 children die each year playing on playgrounds. Many of these deaths and injuries could be prevented if playgrounds — from equipment to surfacing to layout — were designed with safety in mind.

In June 1998, CFA released the third edition of its "Report and Model Law on Public Play Equipment and Areas," as a blueprint for designing, building and maintaining public playgrounds. The CFA report details the hazards on playgrounds that lead to injuries and presents safety and design criteria that can reduce deaths and injuries. Hazards posed by inadequate surfacing, equipment deficiencies, and other problems have been investigated and documented in reports released by PIRG and CFA in1992 (11 states), 1994 (22 states), 1996 (25 states), and 1998 (24 states).

From March-May 2000, the PIRGs and other CFA member organizations investigated 1,024 playgrounds in 27 states (Arkansas, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Maryland, Massachusetts, Michigan, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Texas, South Carolina, Virginia, Washington, and Wisconsin) and Washington, D.C., to determine the current safety conditions of our public playgrounds.

The investigation focused on the hazards that cause the most serious playground injuries, and found the following:

- **In 2000, 80% of the 1,024 playgrounds surveyed lacked adequate protective surfacing.** This is a decrease from the 87% that lacked protective surfacing in 1998. We are particularly encouraged by the decrease in the number of playgrounds with hard surfaces, the least forgiving with respect to injury. Protective surfacing is the **most critical safety factor** on playgrounds because approximately 75% of all injuries are caused by falls.

- **In 2000, 31% of slides and climbing equipment surveyed did not have an adequate fall zone** under and around the play equipment. Other equipment and obstacles in the fall zone pose hazards where a child might fall.

- **In 2000, 48% of playgrounds had climbers and 36% had slides where the height of the play equipment is greater than 6 feet high,** which is higher than necessary for play value, and only serves to increase the risk of injury.

• **In 2000, 13% of playgrounds with swings had swing seats that are made of wood, metal or other rigid material,** which increases the severity of injury if impact occurs.

• **In 2000, 27% of playgrounds with swings had some swings that were either too close together or too close to swing supports,** which increases the risk that a child could be hit by a moving swing.

• **In 2000, in 34% of playgrounds, improperly sized openings in the play equipment posed a head entrapment hazard** that may lead to strangulation.

• **In 2000, in 38% of playgrounds, small gaps, open S-hooks and other protrusions posed clothing entanglement hazards, in particular drawstrings on clothing.** This figure represents a significant decline from 1996, when 47% of playgrounds had clothing entanglement hazards.

• **In 2000, 38% of playgrounds had unacceptable dangerous equipment, such as chain or cable walks, animal swings, individual climbing ropes or exercise rings.**

• **In 2000, 47% of all playgrounds had peeling, chipped or cracking paint on equipment surfaces.**

Overall, this year's survey shows improvements, in particular, a continued decline in the number of playgrounds with hard surfaces under and around **all** play equipment. In 1992, fully 31% of playgrounds identified had cement, packed dirt or asphalt or other hard surfaces; the percentage declined to 13% in 1994, 9% in 1996, 8% in 1998, and to 5% this year. As in previous surveys, however, many playgrounds have mixed surfacing, with loose-fill, absorbent materials like hardwood chips under some equipment, and unsafe hard surfaces like soil and grass under other equipment.

Surveyors continue to note the gradual replacement of old, unsafe playgrounds with new, modern playgrounds. In Washington, DC, for example, the National Park Service has replaced several of its playgrounds, and is on schedule to upgrade the others. Several parents at older playgrounds asked surveyors if they were there to replace the old playground equipment with the new equipment they had heard was scheduled to be installed.

Yet changes move slowly and, with budget constraints, many local governments may not prioritize playground safety unless parents and advocates make it an issue. Local authorities **should** make public playgrounds safer. One estimate showed that in 1995, the health care costs caused by playground injuries were $1.2 billion for children younger than 15 years old.[1]

To improve playground safety, PIRG and CFA offer the following recommendations:

- States and local governments should adopt CFA's "Model Law on Public Play Equipment and Areas."

- Parents, school administrators, child care providers and parks personnel should evaluate their local playgrounds and work to make each playground safer.

As a first step in evaluating the safety of a playground, parents and others can use CFA's "Parent Checklist: How Safe Is Your Local Playground?" It is found in Appendix C of this report, and is available for free to individuals by sending a self-addressed stamped envelope to: Parent Checklist, P. O. Box 12099, Washington, D.C. 20005-0999. It can also be found on CFA's web site: www.consumerfed.org. If any hazards are found, contact the owner or operator of the playground and demand corrective action.

PLAYGROUNDS CAN BE PERILOUS

On July 7, 1998, firefighters rescued a terrified six year old boy in Boston, Massachusetts from a jungle gym after he got his head stuck between two wooden supports. The firefighters used inflatable bags to spread the wooden supports between which the boy had wedged his head. The boy walked away from the playground unscathed.[2]

On April 26, 1999, a four year old girl in Fayetteville, North Carolina died as she was playing in a public playground. She was struck by a piece of equipment and died of a blunt force trauma to her head.[3]

In 1995, an eight year old girl in Newark, New Jersey died in a public housing project playground. She died after she fell seven feet from monkey bars hitting her head on an adjoining concrete wall. Rubber safety surfacing was in place, but sadly, she hit her head on a concrete wall too close to the playground equipment.[4]

In June of 1997 in Derby, Kansas, a 10 year old boy died while playing in a park playground. He died after falling less than seven feet onto a sand surface from a set of parallel bars.[5]

On October 24, 1999, a three year old boy died in Philadelphia, Pennsylvania as he was playing in a playground. He died from suffocation or strangulation when his scarf got caught while playing on playground equipment.[6]

Children love to play — especially outdoors. The outdoor environment provides unique opportunities for play and, therefore, for learning. But children can only benefit from playing outdoors if it is safe. Outdoor play equipment, in particular, poses hazards to children when it is not carefully designed or maintained.

More and more children are injured on public playgrounds each year. Using U.S. Consumer Product Safety Commission (CPSC) data, it is estimated that 170,100 children were injured seriously enough on public playground equipment to require emergency room treatment in 1998. Tragically, an average of 17 children die each year playing on playgrounds. Many of these deaths and injuries can be prevented if playgrounds are designed with greater attention to safety.

Unfortunately, the federal government has not done enough to improve playground safety. There are no mandatory national standards for the design and construction of outdoor play equipment. Although the CPSC published a "Handbook for Public Playground Safety" (November 1991, and revised in 1994 and 1997), this handbook is only a set of guidelines — not a standard. Compliance with the CPSC recommendations is not mandatory.

Injuries and deaths related to public playground equipment — injuries and deaths that could be prevented — continue to occur at alarming rates. For children under the age of

six, the playground injury rate in our country has doubled since 1980. The United States lags behind other industrialized nations in providing for safe playground equipment. Many European countries and Canada have mandatory standards. Our children deserve the same level of protection.

In 1998, Consumer Federation of America (CFA) released the third edition of a "Report and Model Law on Public Play Equipment and Areas."[7] The goal of CFA's report was to educate those who are responsible for and care about playgrounds — including parents, school administrators, child care providers, parks personnel, and designers, so that they could make informed safe choices about play equipment and the layout of play areas.

CFA's report details the hazards on playgrounds and presents safety and design criteria for safer playgrounds in the form of a model law. The provisions of the model law were based on the state of the art in 1998, for safety and design for public play equipment and areas. While no play area or piece of equipment can be made completely safe, careful design can minimize injuries and save children's lives.

"Playing It Safe: A Fifth Nationwide Safety Survey of Public Playgrounds" follows up on the previous four PIRG/CFA Playground Safety Surveys, and the CFA Report, with an investigation conducted to determine the current safety conditions of public playgrounds across the country.

DEATHS AND INJURIES ON PUBLIC PLAYGROUNDS

Public playground equipment continues to be a major cause of injury for children.

Falls — usually to the ground surface below equipment — account for approximately 75 percent of all playground-related injuries. Nine out of ten serious injuries (mainly head injuries and fractures) are caused by falls to the surface. At least one-third of playground-related deaths involve falls. Of all deaths caused by falls, 75 percent involve head injuries.

Other causes of injury involve impact with moving equipment, running into stationary equipment, sharp edges, protrusions, pinch points, hot surfaces, and debris in the play area.

Other causes of death involve strangulation, impact with moving equipment, and equipment failures or tipovers. Strangulation accounts for one-half of all fatalities related to playground equipment. Most strangulation incidents involve entanglement. The typical entanglement scenario occurs because something a child is wearing gets caught on equipment — very often on slides or swings. Clothing, scarves, mittens, jacket strings, and jacket hoods have become entangled in narrow gaps between equipment components, on vertical posts, and on open connecting links such as "S" hooks, causing death by strangulation. Ropes, jump ropes, and leashes, either attached to equipment or being worn around a child's neck, have also been implicated in strangulation deaths. Similarly, free hanging ropes are also a cause of playground fatalities. The other major cause of strangulation is head entrapment. The fatalities resulting from impact with moving equipment generally involve head injuries resulting from swing impact; children under the age of six are almost always the victims in these cases.

Children under the age of four suffer approximately 37 percent of all public playground equipment-related injuries, children between the ages of six and eight are involved in another 40 percent, and children over the age of eight are involved in another 23%. The frequency of injury to children under the age of six has doubled since 1980. Males and females are injured in approximately equal numbers.

Slides are the most frequent cause of injury for children under the age of six. Slide incidents account for 43 percent of all playground injuries. Superficial facial injuries (i.e., lacerations and contusions) and serious head injuries (i.e., skull fractures, concussions, and internal head injuries) are the two predominant patterns of injury for young children on slides, swings, and climbers.

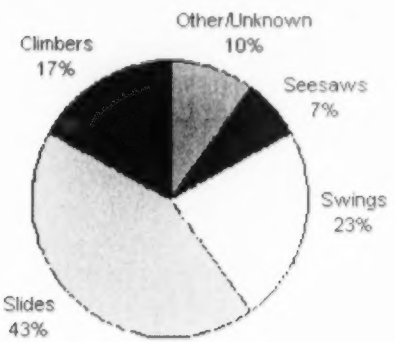
Although falls are the most common mode of injury for both younger and older children, younger children are more likely to sustain injuries to the head and face. When young

children fall to the surface from play equipment, they are more susceptible to head injuries since they often do not have the motor coordination or cognitive skills necessary to protect their heads by breaking a fall with their arms. In addition, young children are at greater risk for head and facial injuries caused by impact with moving equipment such as swings.

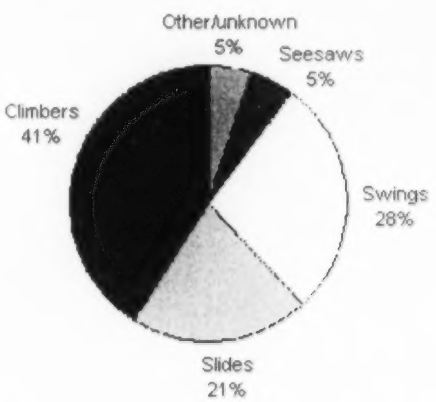
Climbers are the most frequent cause of injury for children six and older, accounting for 32 percent of all playground injuries. Upper limb fracture is the predominant pattern of injury for older children on climbers, swings, and slides.

Because older children's cognitive and perceptual skills are more refined, they better anticipate and avoid moving swings. They are also better able to react to a fall, typically using their arms to break their landing. Consequently, older children reduce the risk of head injury, but they simultaneously increase the risk of upper limb fracture.

Playground Equipment-Related Injuries Sustained by Children Under 6



Playground Equipment-Related Injuries Sustained by Children 6 and Over



RESULTS OF THE INVESTIGATION

The Nation's Playgrounds Pose Hidden Hazards

From March-May 2000, the PIRGs and other CFA member organizations investigated 1,024 playgrounds in 27 states (Arkansas, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Maryland, Massachusetts, Michigan, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Texas, South Carolina, Virginia, Washington, and Wisconsin) and Washington, D.C., to determine the current safety conditions of our public playgrounds.

We believe the sample is representative of conditions at public playgrounds in the state surveyed and provides general trends about playgrounds across the country.

The investigation focused on hazards that cause the most serious playground injuries: falls, impact with moving swings, head entrapment, and entanglement.

This year's survey found improvements from the results of our 1992, 1994, 1996, and 1998 surveys, although widespread hazards still exist at playgrounds around the country.

FALLS

Many design strategies can minimize the injuries and deaths caused by falls. Three strategies are: (1) maintaining adequate protective surfacing, (2) removing other equipment and obstacles from areas where a child might fall (the "fall zones"), and (3) limiting the height of play equipment.

Protective surfacing under and around all play equipment is the ***most critical safety factor*** on playgrounds, yet the investigation found that a majority of the playgrounds surveyed lack adequate protective surfacing. In 2000, 80% of the 1,024 playgrounds surveyed lack adequate protective surfacing.

Table #1: Protective Surfacing Results	**1994**	**1996**	**1998**	**2000**
% Playgrounds With Adequate Protective Surfacing				
Loose Fill of depth greater than 9 inches (wood chips, mulch, sand, etc.)	3%	10%	6%	10%
Rubber or Synthetic Surfacing	5%	5%	7%	10%
Total Adequate	**8%**	**15%**	**13%**	**20%**
% Playgrounds With Inadequate Protective Surfacing				
Loose Fill of inadequate depth (less than 9 inches)	60%	61%	58%	52%
Hard Surfaces (cement, asphalt, grass, packed soil, etc.)	13%	9%	8%	5%
Mixed Hard and Loose Fill Surfaces	19%	15%	22%	23%
Total Inadequate	**92%**	**85%**	**87%**	**80%**

Falls from play equipment can cause life-threatening head impact injuries. The surfacing on which a falling child lands is a major determinant of the injury-causing potential of the fall. Protective surfacing cannot prevent all injuries due to falls, but it can help reduce both the frequency and severity of injuries. Falls onto a resilient surface are less likely to result in a life-threatening injury. The greater the resiliency of the surface, the greater the safety.

Hard Surfaces Are Unacceptable

Protective surfacing materials should cushion a fall. Hard or paved surfaces such as concrete and asphalt as well as earth surfaces including grass, soil and hard packed dirt ***are not acceptable*** because they do not provide adequate protection against falls. Falls onto concrete or asphalt from as low as 2 inches can cause life threatening head injuries.

• Five percent of playgrounds had hard surfaces, representing a decrease from the 8% we reported in 1998.

• An additional 23% of playgrounds had a mixture of hard and loose fill surfaces, representing almost no change from the 22% we reported in 1998.

On playgrounds with a mixed hard and loose-fill surfaces, surveyors noted in many cases that the playground contained, for example, worn grass under one piece of equipment, such as swings, but also had adequate loose fill surface under a new piece of equipment, such as a climber. It appeared in these cases that as a new piece of equipment was added to the playground that adequate surfacing was installed under it. In other cases, it appeared that there were attempts to add loose-fill surfacing, regardless of the age of equipment, and a decision was made to install it under certain pieces of equipment at adequate depths rather than spread it over the entire playground at an inadequate depth.

Maintained Loose Fill Materials And Synthetic Surfaces Are Acceptable

Acceptable protective surfacing materials include certain loose-fill materials — such as hardwood chips — when properly maintained at depths of at least 9 to 12 inches.

• While 62% of all playgrounds had a loose fill surface, only 10% of the total (17% of the loose fill playgrounds) maintained the surface at an adequate depth.

• Of the 52% of the loose-fill playgrounds with inadequate depths of loose-fill surfacing, 17% had loose-fill depths of 6-9 inches. These playgrounds may be making attempts to provide adequate surfacing. However, compaction, decomposition, and displacement, in addition to inadequate depths at installation, can all contribute to depths below 9 inches.

Certain unitary synthetic surfaces — such as premolded rubber tiles — can also meet impact requirements.

• 10% of the playgrounds have synthetic surfacing under and around all of the equipment, up from 7% in 1998.

FALL ZONES

A fall zone is the area under and around a piece of play equipment where a child might fall. To reduce injuries, protective surfacing should be installed throughout the fall zone, and the fall zone should be free of other equipment or obstacles onto which a child might fall. In addition, the fall zone provides adequate space for children to use various play equipment without interfering with the play of other children on different equipment.

Climbing Equipment and Slides:

Approximately 32 percent of all injuries associated with public playground equipment involve climbers. Almost all climber-related injuries are due to falls.

Of all injuries on climbers, 80 percent are sustained by children over the age of six. In fact, climbers are the type of equipment most frequently implicated in playground injuries for children six and older — which may be explained in part by older children's boldness to experiment with creative climbing techniques. Within this age group, climbers account for 41 percent of all equipment-related injuries.

Stationery climbing equipment should have a fall zone extending a minimum of 6 feet in all directions from the perimeter of the equipment.

Slides account for 20 percent of all public playground equipment-related injuries. Of all injuries sustained on slides, one-half are associated with falls to the surface below the equipment, and another one-fourth involve falls onto other parts of the equipment. Falls from the platform, from the top of the slide, and from the top portion of the slide chute are most common. Falls also often occur as children climb ladders that access slide structures. When compared to other types of equipment, slides tend to have higher rates of serious head injuries.

For slides, the fall zone behind the access ladder and to the sides of a slide should extend a minimum of 6 feet from the perimeter of the equipment. The fall zone in front of the exit of a slide shall extend a minimum distance of 6 feet from the end of the slide chute or for a distance of H+4 feet, whichever is greater. H is the height of the slide platform.

• For slides and climbers, 31% of equipment surveyed did not have an adequate fall zone.

Swings:

Swings are involved in 34 percent of all injuries related to public playground equipment. Falls account for approximately two-thirds of swing injuries; most being falls to the surface.

The fall zone for swings should extend a minimum of 6 feet from the perimeter of the support structure on each side as well as a minimum distance of twice the height of the pivot point in front of and behind the swing seats.

> **• In 39% of the playgrounds surveyed, the swings do not have an adequate fall zone.**

EQUIPMENT HEIGHT

While increasing the height of the equipment does not necessarily increase challenge or play value, it always increases hazard. Limiting the height of play equipment is an essential means of reducing the frequency and severity of injury.

Climbing Equipment:

The highest climbing member, such as a rung or platform, of climbing equipment should not be higher than 6 feet for school-age children or 4 feet for preschool-age children.

> **• In 48% of the 995 playgrounds with heights reported for climbing equipment, the climbing equipment is more than 6 feet high, a decline from 1998, when 62% of the climbing equipment was over 6 feet high.**

Slides:

The platform of a slide should not be higher than 6 feet for school-age children or 4 feet for preschool-age children.

> **• In 36% of the 929 playgrounds with heights reported for slides, the slide is more than 6 feet high.**

IMPACT WITH MOVING SWINGS

Impact with moving swings causes one-fourth of all swing injuries. Children under the age of six are those most often injured during moving impact incidents. Given certain cognitive and perceptual limitations, young children may unknowingly put themselves in a dangerous position. Young children often do not pay attention to things outside their direct view. A moving swing, for example, that is outside of direct sight lines may go unnoticed. Further, young children commonly center on a single idea or event. As a result, injuries often occur because young children inadvertently walk into the path of a moving swing while concentrating on other activities. The typical scenario involves a young child walking in front of or behind a moving swing and getting hit, either by the seat itself or by a child in the seat. Therefore, injuries to the head and face are common.

A 24-inch minimum clearance between adjacent swings accommodates the shoulder breadth of a 95th percentile 12-year-old (16 inches) with some tolerance on each side; at the same time this distance is not so large as to encourage children to run between swings. The minimum clearance (30 inches) between a swing and an adjacent structural component is greater to provide extra protection against injuries caused by impact with a rigid structure.

Limiting the swing structures to two seats per bay helps reduce the likelihood of children getting hit by a moving swing. When there are more than two swings per bay, children swinging on a middle swing(s) are at increased risk of a collision from one or both sides. In addition, children do not always swing straight and their play patterns often cause the swings to move out of the usual to-fro axis (e.g. twisting the swing and then letting it unwind or jumping off without stopping the swing's motion).

Spacing Between Swings

Overall, in 2000, 27% of swings posed one or more of the following number and spacing hazards that could increase the risk that a child will be hit by a moving swing.

Swings should be 24 or more inches apart.

- **17% of playgrounds had at least one swing set where swings were too close together.**

Swings should be at least 30 inches from swing supports.

- **20% of playgrounds had at least one swing set where swings were closer, a decline from 26% in 1998.**

Swings should be spaced no more than 2 swings per bay.

- **24% of playgrounds had one or more swing sets with more than two swings per bay, a decline from 31% in 1998.**

Tot/Infant Swing Spacing

Tot/infant swings should not be mixed with swings intended for older children. Infant/tot seats are designed for use by children under two with adult assistance. Because older children using swings often lack control, especially when getting on and off, separating them helps reduce the likelihood of impact incidents between infant/tot seats and regular seats.

- **13% of playgrounds mixed tot/infant and other swings, a decline from 15% in 1996.**

Swing Seats

All swing seats should be made of lightweight, impact-absorbing materials, such as rubber, to reduce the severity of injuries if impact incidents do occur.

• In 13% of playgrounds with swings, the swing seats are made of wood, metal or other rigid material, the same number as in 1998, but down significantly from 1994, when 26% of swings were made of rigid material.

HEAD ENTRAPMENT HAZARDS

Even playgrounds that look safe to parents — those that have protective surfacing, adequate space around equipment, and swings that are designed to minimize impact injuries — may present hidden hazards, like head entrapment. For example, rungs spaced five inches apart on a piece of climbing equipment may not readily appear dangerous, but do pose a strangulation hazard. A child could enter the opening between the rungs feet first and then not be able to withdraw her head because the opening is too small.

Head and neck entrapment presents a very serious risk of death by strangulation for young children and, therefore, warrants extra precaution. Any opening — except those where the ground serves as its lower boundary — with an interior dimension between 3.5 inches and 9 inches may cause head entrapment. Entrapment may occur when a child enters an opening, either head first or feet first, but cannot withdraw his or her head because the opening is too small.

• In 34% of playgrounds, the play equipment poses a head entrapment hazard, declining from 42% in 1998, 46% of playgrounds in 1996, and 55% of playgrounds in 1994.

ENTANGLEMENT HAZARDS

Protrusions and projections on play equipment or gaps, holes or other openings in the play equipment can cause serious injury or death by strangulation if such hazards can entangle children's clothing. Many protrusions, projections and gaps can be eliminated through the design of the equipment or by recessing or countersinking potential hazards such as connecting hardware. Special attention to protrusions, projections, gaps, openings and holes which may present entanglement hazards at the top of slides is warranted. Jackets or clothing with hoods and/or drawstrings have been implicated in such entanglement strangulation incidents.

• In 38% of playgrounds, open S-hooks, gaps, protrusions and other features that may act as hooks or catch points posed clothing entanglement hazards, a decline from 40% in 1998.

HAZARDOUS EQUIPMENT

Certain types of equipment should not be included in public play areas.

Animal swings, multiple occupancy swings (gliders), swinging exercise rings, and trapeze bars are constructed of heavy, hard-hitting, rigid materials that can cause serious head impact injuries.

- **2% of all playgrounds have animal swings. This is down from 19% of the playgrounds surveyed in 1992, 11% in 1994, and 4% in 1998.**

- **3% of all playgrounds have multiple occupancy swings or gliders.**

- **16% of all playgrounds have swinging exercise rings or trapeze bars. This is down from 23% in 1998.**

Rope swings present children with a free hanging rope that poses a strangulation hazard.

- **1% of all playgrounds have a climbing rope or rope swing.**

Track rides, because they are hard to maintain and are difficult for children to use, present a risk of injury from falls.

- **11% of all playgrounds have a track ride. This is an increase from 6% in 1998.**

Chain or cable walks present tripping hazards. Further, if not well maintained they provide children with a chain or cable attached only on one end, which presents the risk of strangulation.

- **17% of all playgrounds have a chain or cable walk.**

Chipped Or Peeling Paint

Forty-seven (47%) percent of all playgrounds had peeling, chipped or cracking paint on equipment surfaces. Further analysis is required to determine if this paint contains lead, and, if so, if it is at a hazardous level.

Testing by the CPSC and some state and local jurisdictions has shown that many school, park and community playgrounds across the United States have metal and wooden playground equipment that presents a potential lead paint poisoning hazard primarily for children six years and younger.

CPSC testing revealed that some equipment was painted with lead paint, and over time, the paint has deteriorated into chips and dust containing lead. In a survey of 26 playgrounds, CPSC found that 62% had lead levels that could exceed the amount used by the federal government to determine lead hazards. Children six years old and younger

may ingest the lead paint chips and lead dust when they put their hands on the equipment and then put their hands in their mouths. Older children and adults are less likely to be at risk because they do not exhibit the same behavior.

Ingestion of lead paint is a major source of lead poisoning for children six years old and younger. Deteriorating lead paint in homes is the leading cause of lead poisoning in children. The health effects of lead ingestion are cumulative. In children, behavioral problems, learning disabilities, hearing problems, and growth retardation have been associated with sustained blood lead levels as low as 10 micrograms per decaliter (ug/dl).

In addition, CPSC has given guidance on how to conduct a lead hazard assessment for playground equipment. The first step of such an assessment is a visual inspection to determine if there are any areas of paint that are cracking or peeling. CPSC notes that special attention should paid to equipment that was installed prior to 1978 when the CPSC's ban on lead paint went into effect. If paint is deteriorating, CPSC states that samples should be collected from several locations on the equipment, giving priority to equipment painted or repainted before 1978. Samples should be analyzed by a laboratory. If paint is chipping, peeling or otherwise deteriorating and the lead levels are equal to or exceed 0.5% by weight, measures to control the lead hazard should be implemented.

CFA and PIRG did not conduct any lead testing, nor take paint samples. However, the results of recent CPSC tests, coupled with the high percentage of playgrounds with peeling paint, suggests that local officials should consider inspecting their playgrounds and conducting additional testing.

Playground Regulations and Community Advocacy

The absence of a national law governing playground safety creates a dire need for strong advocacy at the state and local level. State and local laws are now being considered across the country, in many forms and by many authorities — but all share the same goal of mandating safety requirements for playground design, installation, and maintenance.

At the local level, public school districts and recreation departments often incorporate playground safety specifications in their purchasing and maintenance guidelines. In many cases, requirements are general, stating that any new equipment must comply with CPSC and ASTM (American Society for Testing & Materials voluntary standard for public play equipment) guidelines. Sometimes, additional language is included to address specific hazards. Listing any types of equipment that a school district or recreation department does not allow and specifying a maximum height for different types of equipment are common and important parts of local guidelines (as included in the CFA Report and Model Law). Local regulations or guidelines should include as many details as possible. Parents and other advocates have strong voices in these settings and can promote the development of and adherence to local playground safety requirements.

LOCAL ACTIVITY

Advocacy efforts targeted to **local** governing bodies have also proven successful. The City Council in Pittsburgh responded to the calls of local citizens and enacted one of the first city ordinances mandating a comprehensive playground safety program. Today, Pittsburgh's efforts provide a model for other cities looking to improve their playgrounds. Local parents, together with representatives of CFA, approached Pittsburgh City Councilman Dan Cohen to discuss playground safety and the need for local regulations. In 1993, the City Council passed an ordinance that outlined a plan to train city personnel in playground safety, to audit all city playgrounds, and finally to renovate all city playgrounds. The training and audits were completed over the next several years. Finally, after continued advocacy efforts, funds have now been allocated to complete the necessary renovations to existing playgrounds. Purchasing new playground equipment and surfacing was also addressed: all new playgrounds in Pittsburgh must comply with CPSC and ASTM specifications. The CFA Report and Model Law provided a basis for the Pittsburgh ordinance.

STATE ACTIVITY

At the **state** level, lawmakers — urged by consumers — have passed legislation addressing playground safety in six states with a range of requirements but a common theme of compliance with CPSC, and sometimes also ASTM, guidelines.

California

The California Health and Safety Code (115725) was the first state legislation to mandate development of comprehensive statewide regulations for playground safety, requiring adoption of such regulations by January 1, 1992. The statewide regulations are required to be at least as protective as the CPSC guidelines. They must also include special provisions for child care settings and address the needs of the developmentally disabled. After the effective date of these regulations, no state funds may be used for the planning, development or redevelopment of a playground unless the playground conforms to the regulations. In addition, all public agencies must specifically upgrade their playgrounds by replacement or improvement as necessary to satisfy the regulations (115730).

Until recently, however, no regulations had been enacted. Title 22 "Safety Regulations for Playgrounds" of the California Code of Regulation was filed on December 12, 1999 and went into effect on January 1, 2000. These statewide regulations finally provide detailed specifications for the design, installation and maintenance of public playgrounds, referencing compliance with CPSC and ASTM guidelines as mandatory. In addition, operators of public playgrounds are required to have an initial inspection of their playgrounds by a Certified Playground Safety Inspector by October 1, 2000; then upgrades must be made to satisfy the regulations as required by the previous noted code provisions.

Connecticut
Connecticut's Department of Consumer Protection (Title 21a, Chapter 416, Section 21a-12a) required the development of a training and education program on playground safety issues and the adoption of standards for playground equipment. Subsequently, state regulations adopted CPSC guidelines only as voluntary rather than mandatory, with an effective date of January 1, 1997, and made the annual presentation of a training and education program merely permissive rather than required.

Michigan
Laws in Michigan require all new playground equipment to satisfy both CPSC and ASTM specifications, effective September 1, 1997, while also imposing state civil penalties for those who violate these specifications for manufacturing or assembling playground equipment.

New Jersey
In New Jersey, S206 was enacted into law on March 23, 1999 requiring that the Department of Community Affairs and Department of Education promulgate rules and regulations for the design, installation, inspection, and maintenance of playgrounds. This law also mandates that those rules and regulations be those contained within the CPSC guidelines. Further, it requires that special provisions be included to address playgrounds appropriate for children in child care settings. Government entities and private entities must upgrade their playgrounds by replacement or improvement to satisfy the rules and regulations for surfacing within five years and for all other elements within eight years. Nonprofit entities must upgrade their playgrounds by replacement or improvement to satisfy the rules and regulations for surfacing within five years and for all other elements within fifteen years. All playgrounds built more than six months after the effective date of the rules and regulations must conform to those rules and regulation. New Jersey PIRG was instrumental in achieving this statewide mandate.

North Carolina
North Carolina addresses playground safety for child care facilities, requiring all new equipment and surfacing to conform to CPSC guidelines beginning on January 1, 1996. Playground equipment and surfacing installed in child care facilities prior to January 1, 1996 must conform to CPSC guidelines by January 1, 1999. These state requirements also prohibit the use of gravel for surfacing if the area will serve children under three years of age.

Texas
The Texas Health & Safety Code (756.061) requires substantial compliance with the CPSC guidelines for the purchase and installation of new playground equipment and surfacing beginning on September 1, 1997 if public funds are used.

As CFA and PIRG advocates have seen time and time again, the key to successful advocacy is persistence. On-going follow-up is needed to ensure that old playgrounds get audited and renovated and that new playgrounds meet the current safety requirements.

Getting a law passed is a great first step — and a big one — but it isn't enough. Without continued, active advocacy, it is unlikely that the necessary safety inspections will take place or that funds will be made available to make playgrounds as safe as possible.

CONCLUSION

More and more children are injured on playgrounds each year. And deaths related to public playground equipment — deaths that could be prevented — continue to occur. While no play area or piece of equipment can be made completely safe, careful design minimizes injuries and saves children's lives.

It behooves local authorities to make public playgrounds safer. One estimate showed that in Massachusetts alone, a state with a population of only about 6 million, the lifetime health care costs caused by playground injuries could be conservatively estimated at $10 million each year.[8] An analysis of 215 lawsuits against recreational programs in New York and New Jersey between 1974 and 1987 found that playgrounds led all categories of such suits, and of the 54 (one-quarter of the total) against playgrounds, the primary problem areas included "provision and maintenance of proper surfacing under apparatus and in play areas."[9]

Despite the high number of hazardous playgrounds found in this survey, the situation is not hopeless — playgrounds can be built safely ***and*** provide lots of fun and challenges for children. But more should be done to reach this objective. PIRG and CFA offer the following recommendations:

(1) States and local governments:
Adopt CFA's "Model Law on Public Play Equipment and Areas."[10]

The requirements of the model law are separated into three sections.

- Requirements applicable to *all* play areas and equipment,
- Requirements applicable to play areas and equipment intended for use by pre-school children, aged 2 through 5 years, and
- Requirements applicable to play areas and equipment intended for use by school-age children, aged 5 through 12 years.

For the greatest level of safety, all applicable provisions in the model law should be adopted. However, it is possible for a section or subsection to be adopted depending upon need. A child care licensing entity, for example, might adopt only the general and preschool-age requirements, if they only regulate centers serving children five and under. The protective surfacing provisions are also suitable for adoption alone.

(2) Parents, school administrators, child care providers and park personnel:

Evaluate your local playgrounds and work to make each playground safer.

As a first step in evaluating the safety of a playground, parents and others can use CFA's Parent Checklist. It is available for free to individuals by sending a self-addressed stamped envelope to: Parent Checklist, P. O. Box 12099, Washington, D.C. 20005-0999. It is also available on the CFA web site: www.consumerfed.org. If any hazards are found, the owner or operator of the playground should be contacted and corrective action should be demanded.

ENDNOTES

[1] Office of Technology Assessment, *Risks to Students in School*, Washington, DC, U.S. Government Printing Office, 1995.

[2] Boston Herald, July 8, 1998, p. 5.

[3] Playground Equipment, 1998-1999, Death Certificate File, U.S. Consumer Product Safety Commission, Directorate for Epidemiology, National Injury Information Clearinghouse, # 9937019758.

[4] Playground Equipment Deaths, 1998-1999, Reported Incidents, U.S. Consumer Product Safety Commission, National Injury Information Clearinghouse, # X9863818B.

[5] Playground Equipment Deaths, 1998-1999, Reported Incidents, U.S. Consumer Product Safety Commission, National Injury Information Clearinghouse, *#G9850119B.*

[6] Playground Equipment Deaths, 1998-1999, Reported Incidents, U.S. Consumer Product Safety Commission, National Injury Information Clearinghouse, # X98C1283A.

[7] Much of the information, injury data, and technical criteria presented here come from CFA's report and model law, "Report and Model Law on Public Play Equipment and Areas" (Morrison & Fise, 1998). This document adds survey data reporting on the safety of American playgrounds as a follow up to the CFA report.

[8] Personal communication with Massachusetts Dept. of Health, 5/16/94.

[9] "Lawsuits Brought Against Recreational Programs," *Recreational Newsletter*, National Safety Council, March/April 1988.

[10] The CFA model law (second edition) represents what was, at the time of publication (1998), the state of the art in safety and design for public playgrounds. As more testing is completed and injury data collected, these provisions may at some point become outdated. Entities adopting these provisions should incorporate into their requirements a system of review to assure that these provisions are updated as necessary.

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